

## **Multidisciplinary Invasive Plant Research and Management in Southwestern North America**

Joint Workshop of the United States Geological Survey and the  
California Exotic Pest Plant Council, 5 October 2001, San Diego CA

Summary Report, 15 October 2001

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Most past research on invasive plants has been conducted by biologists, with little collaboration with physical scientists. The primary purpose of this workshop was to foster communication between scientists who are studying invasive plants, scientists studying physical and historical patterns and processes that affect plant invasions, and land stewards who are managing invasive plants in southwestern North America. The take home messages were that: (1) patterns of native species distributions over space and time (decades to thousands of years) can provide insights into the patterns and processes of alien plant invasions; (2) longterm disturbance histories need to be considered when evaluating the impact of invasive plants using shortterm data; and (3) we need to understand the effects of elevated CO<sub>2</sub> and N deposition, and how these changes may interact with rainfall and surface disturbances to create new patterns of abundance and environmental impacts by invasive species. To be most effective, future research will need to be interdisciplinary, especially in arid regions where physical and chemical soil properties and climate appear to have such strong effects on habitat invasibility.

This workshop also provided a forum for managers to describe the various efforts underway to manage invasive plants in Arizona, California, Nevada, and New Mexico. A panel discussion and a working group meeting focused on issues related to the possible formation of a southwest Exotic Pest Plant Council. General questions included a debate on the need for such an organization, what its geographic scope may be, and how it would interface with and not duplicate the efforts of existing invasive plant management groups operating in southwestern North America. It was generally agreed that there is a need for a group to help improve information delivery from researchers to managers, and to serve as a bioregional professional organization to promote the management of wildland invasive plants not listed on state or federal noxious weed lists. Although there are no immediate plans to establish a southwest Exotic Pest Plant Council, the foundations of such a group were established through plans to develop a bioregional list of invasive wildland plants spanning California, Arizona, and Nevada. CalEPPC is in the process of adopting objective listing criteria for the next revision of the Exotic Pest Plants of Greatest Ecological Concern in California, and representative from Arizona and Nevada will be encouraged to participate. It is hoped that a single set of criteria will be used to develop lists in all three states. This is an important first step to managing invasives across state boundaries.

The workshop was attended by 180 people representing USGS, USDA, Universities, Workshop abstracts, and extended abstracts, will be published in the CalEPPC proceedings of the 2001 Symposium, which will be printed within the year.

## Agenda

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### Session I: Multidisciplinary Invasive Plant Research

- 8:15 Introduction and overview of invasive species in the southwest  
Matt Brooks, Research Botanist, United States Geological Survey, Biological Resources Discipline, Western Ecological Research Center
- 8:30 Roles of Environmental Heterogeneity and Climate Variability in Plant Invasions: Insights from the Fossil Record  
Julio Betancourt, Project Chief, National Research Program, United States Geological Survey, Water Resources Discipline
- 9:00 Interrelationships between geomorphology, soils, and plant invasions  
Joe McAuliffe, Plant Ecologist, Desert Botanical Laboratory
- 9:30 Break
- 9:50 How will a hotter, drier, and more variable climate affect invasive species in the desert?  
Todd Esque, Ecologist, United States Geological Survey, Biological Resources Discipline, Western Ecological Research Center
- 10:20 Effects of Increased CO<sub>2</sub> and Nitrogen Deposition on Desert Invasive Plants  
Stan Smith, Professor of Biology, University of Nevada, Las Vegas
- 10:50 Interactive Effects of Roads, Soils, and Exposure on Invasion of California Grassland  
John Gelbard (and Susan Harrison), Graduate Student, UC Davis
- 11:20 Future multidisciplinary research needs  
Matt Brooks, Research Botanist United States Geological Survey, Biological Resources Discipline, Western Ecological Research Center
- 11:30 Lunch

### Session II: Weed Management Groups in Southwestern North America

- 12:30 10 years of CalEPPC  
Mike Kelly, President, California Exotic Pest Plant Council
- 12:50 History and function of exotic pest plant councils  
John Randall, Director of the Wildland Invasive Species Program, The Nature Conservancy
- 1:10 Southwest Vegetation Management Association  
Jim Horsley, Natural Resources Manager, Arizona Dept of Transportation
- 1:30 Southwest Exotic Plant Information Clearinghouse  
Kathryn Thomas, Landscape and Plant Ecologist, United States Geological Survey, Forest and Rangeland Ecosystem Science Center
- 1:50 The Nature Conservancy  
John Hall, Sonoran Desert Program Manager, The Nature Conservancy
- 2:10 Weed management in Mexico  
Patty West, Plant Crew Leader for the Park Service Southwest Inventory and Monitoring Project and Graduate Student, University of Arizona
- 2:30 Break

- 2:50 Arizona and New Mexico Interagency Working Groups  
April Fletcher, Invasive Species Coordinator and Integrated Pest Management Coordinator for Refuges, Region 2 (Southwest Region) of the United States Fish and Wildlife Service
- 3:05 New Mexico Weed Management Areas  
Frannie Decker, Noxious Weed Coordinator, New Mexico Department of Agriculture
- 3:20 Arizona Weed Management Areas  
Ed Northam, Noxious Weed Program Coordinator, Arizona Department of Agriculture
- 3:35 Nevada Weed Management Areas  
Dawn Rafferty, Noxious Weed Program Coordinator, Nevada Department of Agriculture
- 3:50 California Weed Management Areas  
Steve Schoenig, Senior Environmental Research Scientist, Integrated Pest Control Branch of the California Department of Food and Agriculture
- 4:05 Panel discussion (consisting of Session II speakers)
- Discuss the need and interest in forming a pest plant council focused on the southwestern North America
  - Discuss the unique ways that this council could contribute to pest plant management and research
  - Discuss how the functions of this council would complement and not replicate the activities of other groups
  - Discuss ways that CalEPPC could facilitate the formation of this council
  - Identify individuals and organizations who will contribute time and effort to establish and administer this council
- 4:30 Poster Session and Social
- 5:30 Dinner
- 7:00 Working Group: Desert Invasive Plant Management